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MAGIC LANTERN ANNUAL FOR 1898-99. READY END OF SEPTEMBER.

EDITED BY J. HAY TAYLOR.

. . THE OPTICAL . . MAGIC LANTERN JOURNAL And Photographic Enlarger.

A Magazine of Popular Science for the Lecture-Room and the Domestic Circle.

WITH WHICH IS INCORPORATED THE "LANTERN WORLD."

Vol. 9.—No. 110. JULY, 1898. [Entered at Stationers' Hall.] Price 2d., Post Free 3d.

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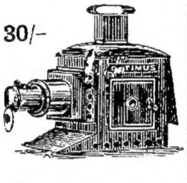

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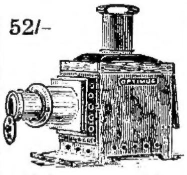

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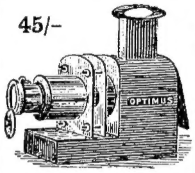

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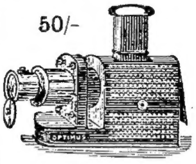

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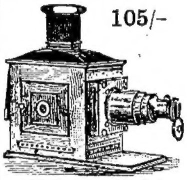

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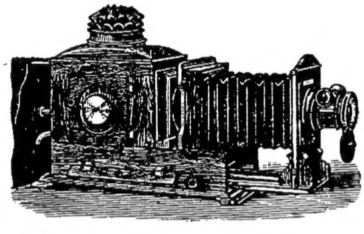

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THE
OPTICAL
MAGIC
LANTERN
JOURNAL
AND
PHOTOGRAPHIC
ENLARGER
EDITED BY J. HAY TAYLOR
A MAGAZINE OF POPULAR SCIENCE FOR THE LECTURE-ROOM AND THE DOMESTIC CIRCLE.
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NOTICES.

THE *Optical Magic Lantern Journal and Photographic Enlarger* is issued on the 1st of every month, price Two Pence, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:—

12 months, 3/-. United States, 75 cents.

EXCHANGE Column, General Wants, &c. (not Trade)—First 20 words, 6d.; and for every 3 additional words, 1d.

SMALL ADVERTISEMENTS must reach the office not later than the first post on the 24th of each month. All cheques and postal orders to be made payable to the Magic Lantern Journal Company, Limited.

EDITORIAL communications must be addressed, **J. HAY TAYLOR.** Advertisements and business communications to **Jos. T. Smith, Secretary, Magic Lantern Journal Company, Limited, 9, Carthusian Street, London, E.C.**

American Agents:—The International News Co., 83 and 85, Duane Street, New York City.

NOTES.

Aladdin Acetylene Lamp.—In reply to our descriptive article on page 86 of last issue, Mr. Tylar, of Birmingham, writes:—"Your hints have been useful, and we are now at work to get the lamp automatic in action, so that no more gas can be made than is needed." The lamp we had is being so altered, and when we again receive it, shall be pleased to give an account of its behaviour, together with particulars as to alteration of construction.

◆ ◆ ◆

A New Lens Factory.—Ground has been secured by Messrs. Taylor, Taylor & Hobson, of Leicester, on which they intend erecting a new factory about four times the size of their present works. It is hoped to have the new buildings finished and occupied before the end of this year.

◆ ◆ ◆

Removal.—Messrs. Levi Jones & Company, Limited, have removed from 71, Farringdon Road, to 29, Hoxton Square, Old Street, E.C.

Rumoured Explosion of a Limelight Apparatus.—On the first of last month an open-air concert was held at Cork, the grounds being illuminated by means of two large Lucigen petroleum lamps supplied from the Customs House. After burning for about 10 minutes one exploded, scattering burning oil in all directions over the people, many of whom have been severely injured. Several newspapers have, when giving the news of this explosion, stated that limelight was being used for the illuminations, and that a limelight apparatus exploded, scattering the illuminating material in all directions, causing great injury from burning, etc. These particulars have, it appears, erroneously caused the impression that the apparatus which exploded was an ether saturator.

◆ ◆ ◆

Philadelphia Photographic Salon.—In our May Journal we gave particulars of a photographic exhibition to be held from October 24th to November 12th, at the Pennsylvania Academy of the Fine Arts, Philadelphia. We learn that pictures from abroad if delivered not later than September 1st, carriage paid, to Mr. Walter D. Welford, 19, Southampton Buildings, Chancery Lane, London, W.C., marked "For the Philadelphia Photographic Salon," will be transported to the exhibition and returned to London free of all expense to the exhibitor. Circulars, entry forms, labels, and all particulars, may also be obtained from Mr. Welford.

◆ ◆ ◆

Cinematographic Pictures at Westminster.—In connection with the lying in state and funeral procession of the late Mr. Gladstone, Messrs. Fuerst have produced half a dozen cinematographic pictures, including crowds of people passing through Westminster Abbey during the lying in state; Procession to the House of Commons; Procession to the House of Lords; Procession of the hearse drawn by two horses; Royal Family leaving the Abbey, and the Lord Mayors of London, Edinburgh, and Dublin, in state carriages.

◆ ◆ ◆

A Little Knowledge is Sometimes Dangerous.—It so happened that on Derby Day a photograph of the event was taken by the Biograph Company, and exhibited at the Palace of Varieties the same evening. A *Daily Mail* special correspondent called at the office of the company to ascertain how they had developed the film so quickly, and reports the manager in charge as giving the following information:—"'In the first place,' he said, 'there was the taking of the race; that was easy. Then we had to get back to town immediately after the finish, which was more difficult. However, we got the film into the Biograph office in Windmill Street just after six o'clock, and started developing immediately. This was done by artificial light, which, owing to the perfection of our electrical appliances, is so strong that it would blind anyone who tried to face it with open eyes. The development under these favourable circumstances took about an hour and a half.'" The correspondent in question has yet to learn that the development of films is not expedited by means of an intense light in the "dark-room."

◆ ◆ ◆

"Guide to Leamington Spa," etc. 1s.—Messrs. Dawbarn & Ward, Ltd., London, have published an interesting guide book to Leamington, Warwick, Kenilworth, and Coventry. It is written in an interesting strain by Mr. Bernard C. P. Walters.

◆ ◆ ◆

Seven Years Penal Servitude.—On June 25th F. F. Weeks, who for many years has been known among lantern slide makers as a good draughtsman, was sentenced at the Old Bailey to seven years penal servitude, the charges against him being bigamy, abominable conduct to his daughters, and with attempted suicide at the time of his arrest. Justice Grantham said this case was one of the worst that had come under his notice, and the prisoner, although he professed to have great religious sentiments, was a villain of the deepest dye.

◆ ◆ ◆

Working a Triple Lantern.—Many people seem to be under the impression that triple lanterns are so complicated that it takes years of study and practice to understand them. A gentleman who a few weeks ago was practically ignorant of the working of the limelight, purchased a triple from Mr. J. H. Steward, of the Strand, and with it obtained six foolscap folios of written instructions. It is gratifying to Mr. Steward to have lately received a letter from the customer in which he says:—"When I purchased the lantern from you I was practically ignorant of the working of the limelight and of a triple lantern, but with the aid of your written instructions I was able to operate successfully, even at the first trial, and a little practice has enabled me to work the dissolving apparatus with ease and certainty, and to centre the jets and adjust the registering stages without any difficulty."

GENERAL ADVERTISEMENTS.

A PROFESSIONAL lanternist and cinematographist of great experience is open to engagements, with or without his own apparatus, in town or country, on very moderate terms. Reference, Editor of this Journal. —Address, Optics, 13, York-street, Walworth, London.

COLLODION transparency making (from any size negative), free from grain; slides coloured best possible style; list of hand-painted dissolving effects, 1d. —Address, Wilkinson & Co., Artists, Sunderland.

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WANTED, by the Modern Marvel Company, Limited, one more lanternist to complete their staff (already engaged Messrs. G. H. Philp, Pexton, Bate, Lehmann and Emery), for tours commencing in August, must be able to work triple and cinematograph; the Analyticon and other optical novelties recently exhibited at the Photographic Exhibition in the Crystal Palace will also form features of the programme; eight months' tour, lengthy stay in big towns.—State age, experience, and terms to Mr. West, 2a, Shandwick Place, Edinburgh.

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HUNDREDS of slides.—Wilson, York, etc.; plain and coloured; good quality; sell or exchange.—Moody, Bell & Son, Opticians, Cheltenham.

MAGNIFICENT Coloured Slides.—50 Norway, 20s.; 50 Ireland, 20s.; 50 South Africa, 20s.; 60 Round the World, 25s.; 50 North Wales, 20s.; 50 Paris, 20s.; 50 Rhine and Switzerland, 20s.; with lectures.—W. Boulton, 19, Lune Street, Liverpool.

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One Front shows Slides or Diagrams.

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The Three Fronts are mounted on one Table, and may be removed, so that the Photochromoscope or Cinematograph may be put in its place. The Condenser is hinged, so that it can be swung out of the way.

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. . MAGIC LANTERN . .

Almanac and Annual

FOR 1898-9.

EDITED BY

J. HAY TAYLOR.

THIRD YEAR OF PUBLICATION.

The Magic Lantern Almanac and Annual was published for the second time last year, and was a great success. It will again be published in OCTOBER.

AS AN ADVERTISING MEDIUM

for the Lantern Trade it is unrivalled, as it is in circulation not only in the ***British Isles*** and the ***Continent***, but orders were received from

ALL PARTS OF THE WORLD.

The 1898-9 volume will contain a mass of information appertaining to the Lantern and kindred subjects, and will be most valuable to all interested in those pursuits.

The advent of

ANIMATED PHOTOGRAPHS

has awakened wide interest, and where formerly hundreds felt interested in Lantern matters, thousands of persons are now taking up the subject—so much so, indeed, that next season Lantern and Kinematograph manufacturers may anticipate a rush of business hitherto unknown.

* * *

MAGIC LANTERN JOURNAL COMPANY, LTD.,

9, CARTHUSIAN STREET, LONDON, E.C.

Cycloramic Projection.

ACCORDING to promise stated in our last issue, we give a few details of the method employed in the projection of the pictures at Niagara, St. James's, Westminster, London, which was closed after a run of 14 days.

When one entered the building they proceeded upstairs to what may be termed a large platform elevated in a circular building some 400 feet in circumference, the sides of which were lined with a huge white screen 40 feet high. The platform spoken of, which was capable of accommodating several hundreds of persons at one time, brought the heads of the audience about midway between the top and the bottom of this screen.

In the centre of the platform was a small tower, from which pictures taken by a revolving camera were projected so as to form a continuous scene on the huge screen. The details of the inside of this tower will be understood from the sketch (Fig. I.), which shows the lime in the centre, jets marked A, condensers B, slides C, in a particular form of up and down double carrier D, and lenses for projection at E. There are thus practically 10 lantern systems radiating from one lime cylinder. This one lime, thanks to the peculiar jet invented by Mr. C. W. Locke, the well-known lantern expert and manufacturer, who had charge of all the manipulations, is thus made to give 10 points of light, so that there are practically 10 different lanterns and jets, but only one lime.

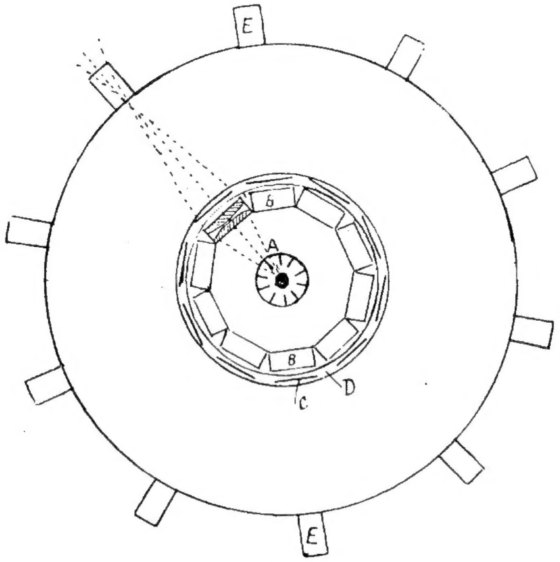

Fig. I.

This jet, which needless to say is a very powerful one, is shown at Fig. II. It consists of a ring into which are brazed 10 stems, each carrying one of Mr. Locke's special nipples; it is fitted with a large mixing chamber A, which is the subject of a patent by the same gentleman. This chamber, together with a brass cylinder B, is supported on a small platform which is attached to the upright tubes. This cylinder holds three limes of $1\frac{1}{4}$ inches diameter, and unlike most limes used in this country, they are not made with any hole for a lime pin, but are solid and rest on a disc and screwed rod. The raising and turning of the lime is controlled at D. The connection of the oxygen and hydrogen tubes is made at the screw taps E.

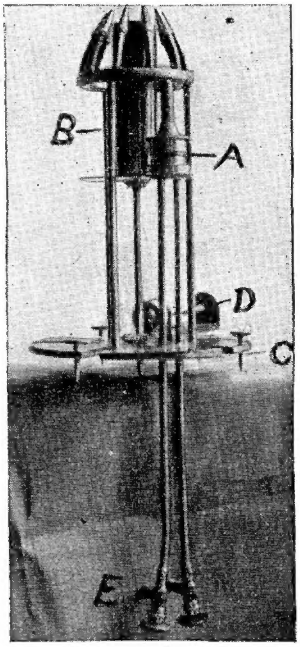

Fig. II.

At C will be seen three levelling screws; these rest on a bed-plate (not shown). Great care has been exercised in the making of the jet, in order that everything be absolutely equal. In reality, this jet is as simple to work as a single jet, and Mr. Locke informs us that with a special lime he has obtained, one lime has served for three hours' continuous use; the freedom from cracking he to a large extent attributes to the lime being kept equally heated all round.

The intensity of this jet is stated to be 15,000 candle-power, and the consumption of gas at 40 feet each per hour.

The gas supply, as we stated, is connected to the jet at E; the oxygen side is attached to a large cylinder of compressed gas supplied in the usual manner with an automatic regulator. The hydrogen, on the other hand, comes from the main, the force of which is augmented by water pressure.

Fig. III. represents a huge iron tank, which is connected with the house gas supply at the top and the water supply at the bottom. We will suppose a tank of this description to have just been connected up (as shown), and that it contains air. First of all, it becomes necessary to dispel this air; this is done by opening the water inlet tap 1 and closing the outlet water tap 2. Tap 3, which is the gas inlet, must, of course, be closed, whilst the outlets to the outside 4 and 5 are opened. The water from the main thus flows into the tank *via* 1, and rising in the tank drives the air out at 5. As the water rises so its height in the tank is indicated by the gauge glass shown at side.

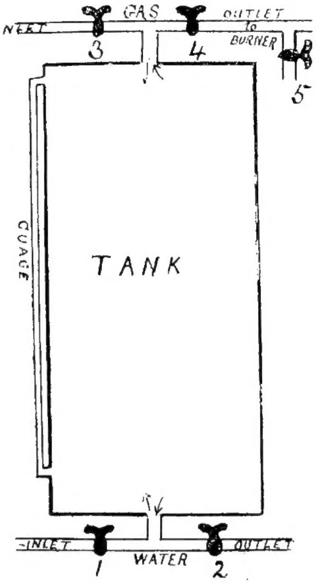

Fig. III.

The tank having thus been filled with water, and the air consequently driven out, the taps 1, 4, and 5 are closed, and the gas inlet 3 and water outlet 2 opened; in this manner the water runs out to waste and the gas flows in at the top, so that as soon as all the water has run off, the tank is full of gas and the taps can be closed. Now comes the question of getting the gas which is in the tank delivered at good pressure; this it will be seen is a very simple matter, entailing only the opening of the water inlet 1 and gas outlet to burner 4, when the force of water will drive the gas out. When employing this system with one tank only, there must necessarily be a little delay in an exhibition during the time of refilling with gas, but with two such tanks the supply can be switched from one to the other, so that when one is being emptied the other can be recharged.

* * *

Calcium Carbide and its Yield.

By PAUL HUBERT.

WHAT are the causes whereby a carbide does not give or seem not to give off the 300 litres of acetylene per kilogramme as is usually guaranteed on the invoice? Firstly, let us deal with the case of a carbide which really does not produce 300 litres. The impurities alone are at work. There are, as we know, two classes:—

1. Those impurities upon which water has no influence in ordinary circumstances, and which do not affect whiteness of the flame; they are plumbago, carborundum (silicium carbide), carbon boride, and finally, metallic carbides and silicides. These last, it is true, may be decomposed by the water when an acid is present. Siliciuretted hydrogen is then evolved of a highly inflammable nature.

2. Impurities of the second-class are quickly attacked by air. According to Mr. Bullier, they comprise phosphates, carbon, ash, lime, aluminium sulphides, metallic nitrates, metallic calcium.

In order to avoid as much as possible formation of all these useless and frequently troublesome substances, care should be taken to employ carefully determined compositions in the manufacture of the elementary material.

Coke should only give about 7 per cent. of ash; if it gives 10 per cent. it should not be employed. Wood carbon would certainly be preferable, but it is unfortunately too expensive. When possible the lime should be utilised as quicklime, and be free from magnesia; not more than 3 per cent. Fat lime is preferable to any other.

Mixtures of coke and lime have great influence on the quality of the product. With

65 parts of coke and 100 of lime a carbide is easily made, which gives 300 litres of gas and more per kilogramme.

Proportions also vary with the voltage. For 100 volts the proportion of carbon is increased, and for 65 volts only 63 per cent. of coke is employed. It is also to be remembered that if the voltage changes during work, the workmen must have recourse to certain manipulations, varying with the kind of furnace; the seasonableness of these operations may have a great influence on the quality of carbide. Likewise, in emptying the furnaces one receives together with the carbide the insulating coating firstly placed to protect the sides of the crucibles against the intense heat. Now, unless attention is given, these layers of coke become mixed with the merchantable products, and evidently do not evolve more gas than those metallic lumps, sometimes as big as the fist, frequently found in carbide. It is the same with material in certain parts of the block of carbide. It is during this operation of sorting that fraud may be practised, and more or less admissible mixtures made. Fortunately there are firms which pay close attention to this phase of manufacture.

Finally, let us speak about the causes for which a carbide seems not to give the 300 litres guaranteed. Everyone knows that to obtain good combustion of acetylene we must establish a well-defined relation between the pressure of gas in the apparatus and the burners. If the burners, for example, burn

pure gas,

a slight pressure will suffice; if it became too strong the flame would suffer. On the contrary, if the burners have an air passage, pressure must be increased. Let us take the case of pure gas burners consuming 20 litres per hour, which after a certain time are replaced by air and gas burners; evidently there will be a greater expenditure of gas because pressure has been increased, and an air burner is generally of large consumption. Now, if for the same number of burners consumption of carbide increases owing to the change of burners, the apparatus must be filled oftener. Does this mean that the carbide has lost quality? Certainly not. Yet several acetylenists amongst my acquaintances would not admit this. One must not lose sight either of the over-production which occurs in many apparatus. According to the level of the bell above the tank, and the production of gas resulting from the attack of carbide by the humidity of the products attacked at the time of extinction, one may, in some cases, have to collect a greater or less volume of gas when the apparatus really ought not to work. If the bell is raised this gas if not compressed passes through the gasholder after driving back the water, and loss in this way may be great, if any evolution of gas sounds can be heard, and the characteristic odour of acetylene is perceptible.

The solubility of acetylene gas in the carbide water, and that of the gasholder is also to be taken into consideration, for water dissolves about its volume of acetylene. Now in some apparatus a great deal of water is lost in cleaning, and this water containing acetylene must be replaced by other water, which in turn will dissolve the gas, the result being considerable and inevitable loss. From all this we must conclude that if carbide is often to blame, the acetylenist is sometimes unjust.

(*L'Avenir de l'Acetylène.*)

◆

The Lanternist's Practical Cyclopædia.—No. XXI.*

By CHARLES E. RENDLE.

QUICKSILVER OR MERCURY.—A metal found in Spain and many other parts of Central Europe, in China, Mexico, and South America, and has been known from the very earliest times. Mercury is extracted from the ore by a roasting process in a special furnace, the sulphur burning away thus converting the metal into condensable vapour. It is the only metal that remains liquid at ordinary temperature. Its purity can generally be detected by running it over smooth surfaces. It should have a brilliant silvery appearance and run without leaving a trace behind, but if its action be inert, and dirty to look at, leaving streaks in its trail, it needs purifying. It boils at 675 degrees Fahr. and freezes to a malleable mass at about 40 degrees below Zero. It is the heaviest liquid known, being 13·6 times heavier than water. A quicksilver and tin amalgam is used for mirrors, reflectors, etc. It was from the red oxide of mercury that the first oxygen gas was made—a powder of a heavy scarlet hue obtained by heating the metal up to about 600 degrees Fahr. in presence of air.

RACKWORK SLIDE.—*See* Motion Slides.

RADIATION OF LIGHT.—The diffusion of the light's rays, divergence from a point, like rays striking a fresh course.

RAIN EFFECT SLIDES.—A downpour of rain is effectively represented on the screen by using one of the mechanical rain slides, the invention of W. R. Hill. This effect, like the snowstorm slide, is always appreciated by an audience.

RATCHET WHEEL.—Wheels cut with angular teeth into which a ratchet or click falls, preventing the part of mechanism to which it is attached from running back.

READING DESK AND LAMP.—*See* Lecturer's Desk.

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* All rights reserved.

RECAPITULATION.—It must be an established rule, and strictly adhered to, that all lanternists make a summary of their requirements for each and every exhibition, otherwise much confusion and disappointment may be evinced. What is meant is, supposing the show is to be given at so-and-so hall, in so-and-so street, Bixley. Luminant with blow-through jets. State this in note book of engagements. Refer to list, which you always keep in readiness, of accessories for blow-through. Two blow-through oxyhydrogen gas jets, cylinder of oxygen gas, oxygen regulators and pressure gauge, connecting tubes, hammer, nails, screweyes, ropes and pulleys, 20 ft. screen, pointer, reading desk and lamp, blue spectacles, rubber tubing, and so on through the whole list of apparatus and things wanted. Such a system is the only one that will insure perfectness in this part of lantern work, can be done at the time of packing, and only take a minute or so to run through. Assuming that all lanternists never attempt anything without rehearsal, that is the proper time to make the above lists perfect. In this particular the memory must not be trusted for anything.

REFERENCE TABLE.—A ready reference table, which is both useful and reliable, has been calculated by Mr. J. Hay Taylor, and is published by the Optical Magic Lantern Journal Company, Limited, at the modest cost of 2½d., post free. Its purpose is to show at a glance the diameter of discs yielded by object glasses of the varied *foci* at a given distance between objective and screen; also *foci* of lenses required.

REFLECTORS.—Are seldom used except in the smaller lantern, or may be attached to a kerosene lamp. They are mostly made of copper, and silvered on a highly polished surface, thus forming a mirror. They must be kept bright, and when not in use, away from the air to prevent oxidising. Lantern reflectors may be polished with almost any substance free from grit, such as jeweller's rouge or tripoli; either should be made into a paste, rubbed over with a piece of linen, then polished dry with a chamois leather.

REGISTRATION.—The reference registration has in lantern matters applies principally to the registering of the discs, where effect slides are used. Each and every slide must be so dissolved that it appears coincident to the one preceding it in every particular and minute detail. With regard to a single lantern this is easy enough, as the carrier used need only be once adjusted in the stage, when hundreds of slides can be passed through and take their proper position on the screen, but with the double or triple lantern more care is required. In the first place it is advised to light up, say, both the lanterns, and manœuvre the stages until the discs coincide, when a pair of templates—which are photos of lace, diagrammatic drawings, or most any subject having delicate detail—can be placed in the carrier frames and again manœuvred until each line, or curve, or whatever they may be, so blend on the disc that the two photographs appear as one. As practice makes perfect, here is a branch that requires much attention, and practice must be given it, otherwise most ludicrous results may follow. It must be remembered that effect slides are not all *fac simile* of one another, as sometimes two, three, four, or more are employed to get certain results. As a simple example of the importance of pictures being properly registered may be mentioned the case of an angel who should have descended over the dying child's bed, and thus brought tears into the eyes of those listening to a pathetic story, the said angel had apparently taken the wrong turning, for she appeared down the chimney.

REGULATOR.—Automatic regulators are necessary when compressed gases are employed, specially so with the mixed jet, saturator, etc. When one of these is fixed to cylinder nozzle the gas can be turned full on and an even and uniform lesser pressure obtained, and these results will remain constant until the whole of the gas be used up. There are many forms and makes of regulators. The Beard or Clarkson I know to be reliable, but in all cases of selection a fair price should be paid.

RETORTS made of iron are best for oxygen gas-making, and those with a safety valve in screw cap at top as preventative against possible explosion through gas running off too violently are recommended. Mr. Hughes, of Kingsland, supplies an article of the kind above-mentioned. In this a cork blows out so soon as the retort becomes overcharged. These retorts may be simply defined as iron bottles with an outlet tube at top end.

RETOUCHING.—A branch in photography in which a picture is improved by retouches; a branch of the artist's art. The negative is first prepared to receive what is called a tooth—that is, a surface that will take the pencil. Black lead pencils of medium hardness give the best results, the parts of negative to be retouched are worked over until the desired density is obtained.

ROLLER CURTAINS.—*See* Curtains and Curtain Slides.

ROCK OIL.—*See* Petroleum.

ROYAL SOCIETY.—One of the highest distinctions a scientific man can aspire to is that of being made a Fellow of the Royal Society (F.R.S.). Since 1857, Burlington House, Piccadilly, has been its headquarters. Established in 1660, and constituted in 1662 by Charles II. a body politic and corporate, for improving natural knowledge, and to be called "The Royal Society of London."

RUSSIAN IRON.—So-called, is but a process to which iron is subjected, and known as the charcoal process; iron is softened and allowed to gradually cool with the charcoal around it.

(*To be continued.*)

* * *

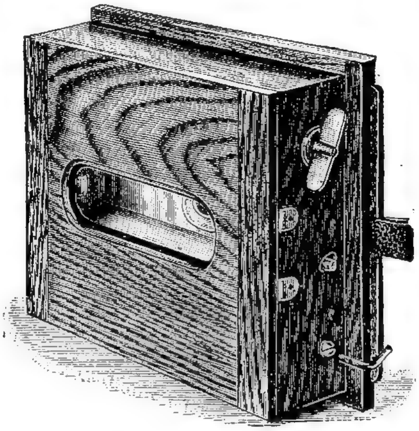
How Cinematographic Machines Work.—No. VI.

By **MAGNET.**

A MORE recent invention of Wm. Friese Greene is shown at Fig. XV. The machine is of that class in which the intermittent motion is obtained by a loop forming device. The correct length of film required for each projection is drawn from the roller 2 by means of a device consisting of a roller 19 mounted on a crank arm 20, which is balanced by a counterweight 20a, and is shown fixed on the driving shaft 11. The distance to which the film 1 is forced out

GLASS PLATE CAMERAS
LOADED IN DAYLIGHT
With Cartridge Films.

DARK ROOM NOT REQUIRED.



EASTMAN'S
DAYLIGHT CHANGING
CARTRIDGE
ROLL
HOLDER.

INTERCHANGEABLE with DARK SLIDES.
READILY FITTED TO ANY CAMERA.
LIGHT AND COMPACT.

Note the Price!

The 4¼ × 3¼ in. **ROLL HOLDER** weighs only 9 ounces	**Price £1 0 0**
The 5 × 4 in. **ROLL HOLDER** weighs only 11 ounces	**Price £1 0 0**

FULL PARTICULARS POST FREE.

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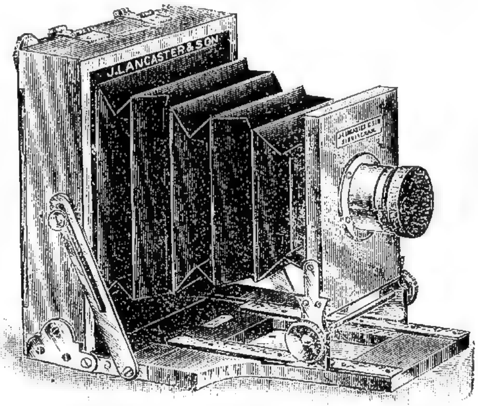
Head Office and Warehouse:
43 CLERKENWELL ROAD, LONDON, E.C.

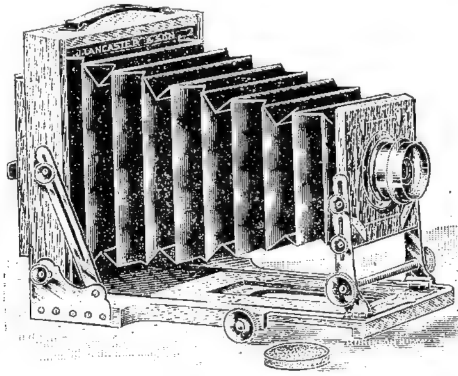
Retail Branches: 60 CHEAPSIDE, E.C.; 115-117 OXFORD ST., W., and 171-173 REGENT ST., W.
PARIS: EASTMAN KODAK Société Anonyme Française, Avenue de l'Opéra 5. Place Vendôme 4.
BERLIN: EASTMAN KODAK Ges., m.b. H., Markgrafen Strasse 91. ROCHESTER, NEW YORK: Eastman Kodak Co.

JAMES LANCASTER

THE LARGEST MAKERS OF PHOTOGRAPHIC APPARATUS IN

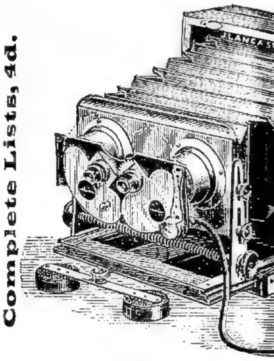


LANCASTER'S "LE MERVEILLEUX" (Patent).
¼-plate, **21**/- ; ½-plate, **42**/- ; 1/1-plate, **63**/-



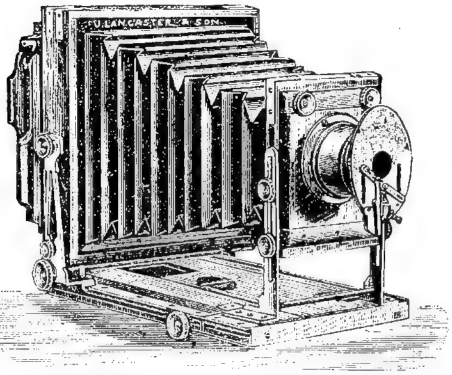
LANCASTER'S "LE MERITOIRE" (Patent).
¼-plate, **31/6** ; ½-plate, **63**/- ; 1/1-plate, **90**/-

Complete Lists, 4d.

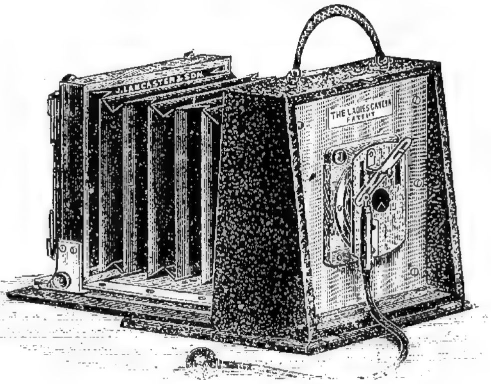


"STEREO INSTAN

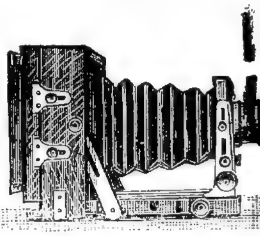
The Stereo Instantograph is a **n**
with Instantaneous Shutter, best
Slide measures 6¾×



LANCASTER'S BRASS BOUND "SPECIAL INSTANTOGRAPH" (Patent).
¼-plate, **50**/- ; ½-plate, **100**/- ; 1/1-plate, **150**/-

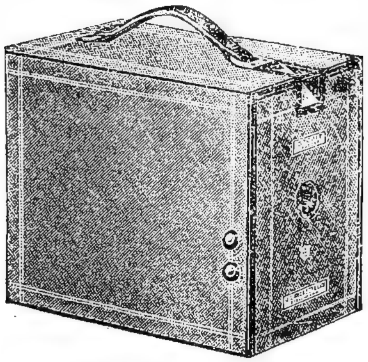


LANCASTER'S "LADIES'" CAMERA (Patent).
Folding up like a Recticule.
¼-plate, **42**/- ; ½-plate, **84**/- ; 1/1-plate, **126**/-

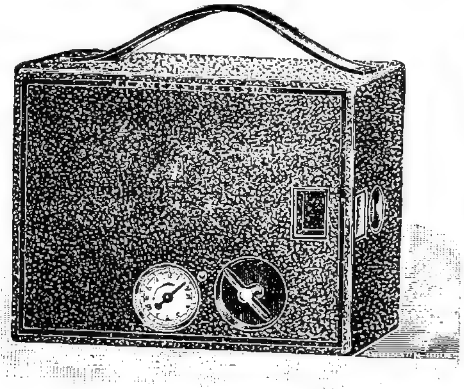


LANCASTER'S "M
(For Enl

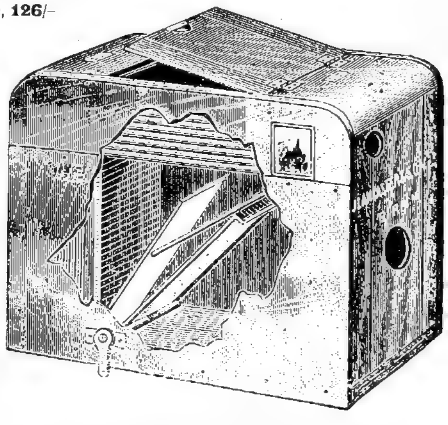
To enlarge up to ¼-plate .. ..
" " ½-plate .. ..
" " 1/1-plate .. ..
" " 10× 8 plate ..
" " 12×10 plate ..



LANCASTER'S "STOPIT."
Cloth-covered Camera, with Achro. Lens, "Iris" Shutter, Double Metal Slide carrying ¼-plates, **10/6**.
Do., with three Metal Slides, **21**/-



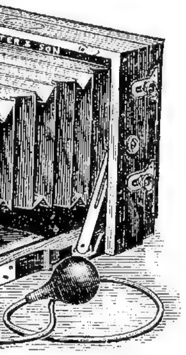
LANCASTER'S NEW HAND CAMERA, "THE KAPAWL" (Patent).
For Roll Films only, **21**/-



LANCASTER'S HAND MAGAZINE CAMERA, "THE ROVER" (Patent).
Carries twelve plates or films. Simplest ever made.
Shutter always set—any speed.
¼-plate, **63**/- ; ½-plate, **105**/-

& SON, Opticians, BIRMINGHAM.

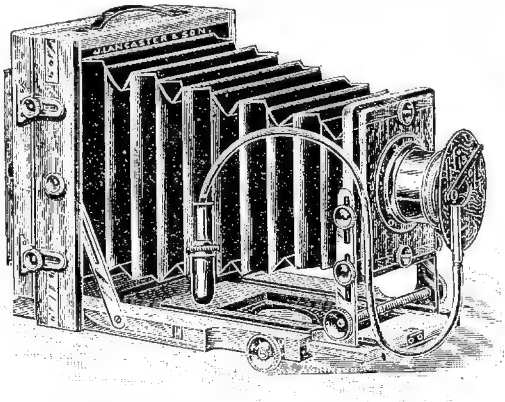
THE WORLD. UPWARDS OF **185,000** CAMERAS SOLD.



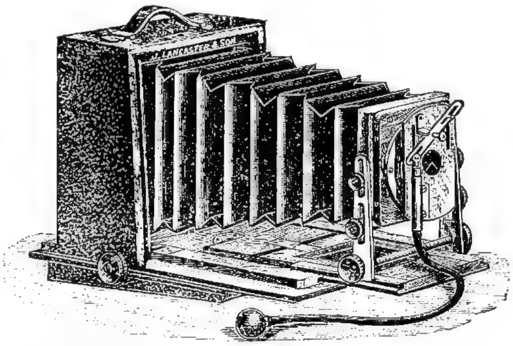
Abridged Lists, Free.

TOGRAPH."

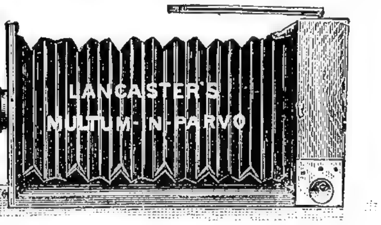
ost excellent apparatus,
Lenses and Stand. The
3¼. **84/-**



LANCASTER'S "INSTANTOGRAPH" (Patent).
¼-plate, **42**/-; ½-plate, **84**/-; 1/1-plate, **126**/-

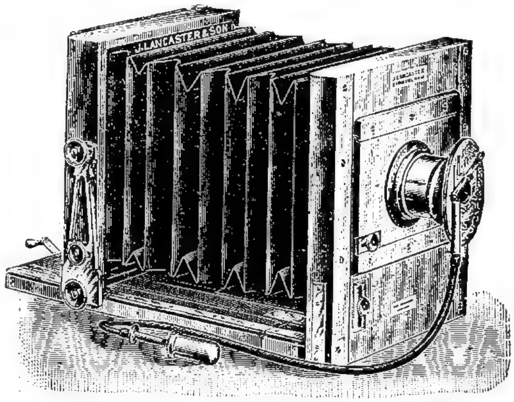


LANCASTER'S "FOLDING INSTANTOGRAPH"
(Patent).
¼-plate, **42**/-; ½-plate, **84**/-; 1/1-plate, **126/-**

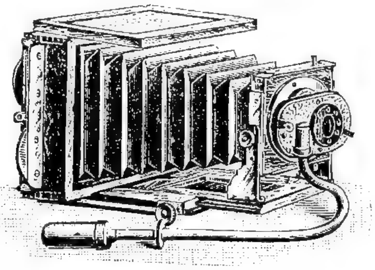


ULTUM-IN-PARVO" CAMERA
arging and Reducing).

10/**6**	To enlarge up to 15 × 12 plate	.. **40**/-
15/-	" " 20 × 16 plate	.. **75**
21/-	" " 24 × 20 plate	.. **84**/-
25/-	" " 30 × 24 plate	.. **105**/-
30/-		

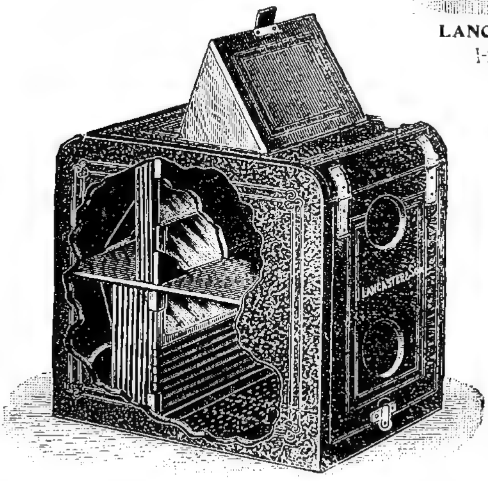


LANCASTER'S "INTERNATIONAL" (Patent).
¼-plate, **50**/-; ½-plate, **100**/-; 1/1-plate, **150**/-

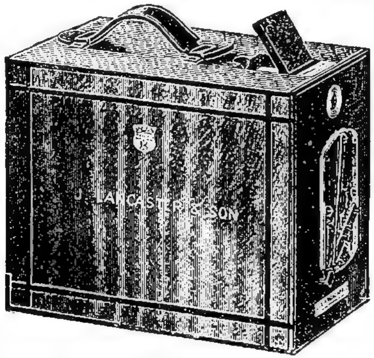


LANCASTER'S
"CYCLO INSTANTOGRAPH" (Patent).

The Cyclo Instantograph, with Instantaneous Lens, Shutter, Stand, etc., and Leather-bound Case, three Double Metal Slides, ¼ plate, **42**/-
For Horizontal or Vertical Pictures.

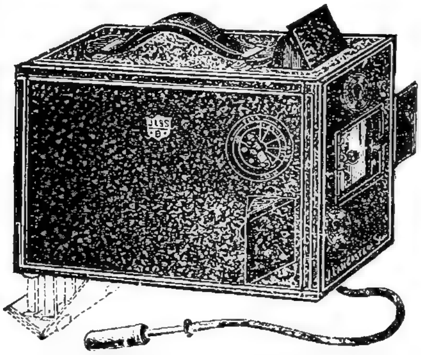


LANCASTER'S
HAND CAMERA "THE ZOEGRAPH."
¼-plate, **63**/-; ½-plate, **105**/-



LANCASTER'S HAND CAMERA
"THE OMNIGRAPH" (Patent).

Carries six ¼-plates. Cloth-covered **21**/- Leather-covered, **25**/- Superior leather-covered, every working part hidden, best lens, etc., **31/6**



LANCASTER'S "PERFECT OMNIGRAPH"
(Patent).

Covered in best Leather, Instantaneous Lens, Patent "See-Saw" Shutter, Double Finder, Rack Adjustment, Divided Scale, etc., etc., with three Metal Slides, or Changing Box, carrying six plates or films.
¼-plate, **42**/-; ½-plate, **84**/-

IMPORTANT TO ALL LIMELIGHT USERS!

BORLAND'S

PATENT SCISSORS ARC LAMPS

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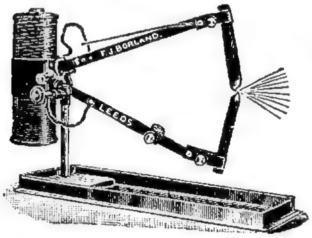
Direct and Alternating Currents.



Made in Three Types

Hand Feeding.

Self-Striking & Hand Feeding.

The "**Dot.**" The *only automatic* Arc Lamp in the market which fits all ordinary Optical Lanterns on the limelight tray without any alterations

Invaluable for *Theatrical Purposes, Lantern Projections, Enlarging, Printing, and Photographing.*

Prices Particulars, and Testimonials free on application to—

F. J. BORLAND,

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Maker of High-Class Optical Lanterns.

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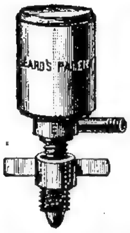


BEARD'S REGULATORS are the most perfect Regulators for producing the Best Light with Compressed Gas.—Price **30s.**

BEARD'S PRESSURE GAUGE, fitted with Schaffer's & Budenberg's Patent Spring Back and Steel Tube, **30s.**

BEARD'S NEW JET.

Maker of the Perfect Cinematograph. Fitted to any Lantern. Can be seen Working. Films Supplied.

10, Trafalgar Rd., Old Kent Rd., S.E.

(Five Doors South of Lord Nelson.)

Established 1886.

FREDERICK J. STEDMAN,

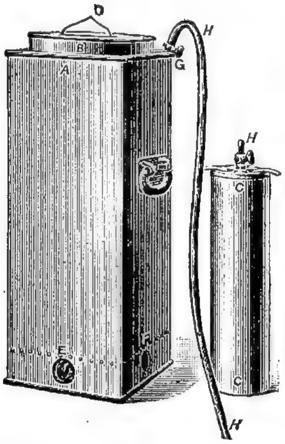
Lantern Slide Maker and Colourist

103, ALBERT ROAD, BATTERSEA PARK,

LONDON, S.W.

THE "ABINGDON SAFETY"

Acetylene Gas Generator.



An immense success.
No trouble.
No waiting.
Needs no attention when once started.
No gas escapes when lights are turned down.
Water does not spill.
Safe. Simple. Efficient.
Can be recharged when lights are burning.
Acknowledged by practical experts to be *the best* for lantern work.
Every apparatus tested and guaranteed.

Price 37/6.

THE "MOSS" LANTERN JET will give a brilliant picture 30 feet from screen. **Price 10/6.**

EVERY LANTERN DEALER SHOULD STOCK THEM.

AGENTS WANTED.

The Abingdon Acetylene Illuminating Co.,
LIMITED,
97, GREAT HAMPTON ST., BIRMINGHAM.

The New Silver Lantern Screen (Patent.)

LEWIS WRIGHT & ANDERTON'S

SILVER SCREEN

Will practically more than double the illuminating power of oil lamp, incandescent gas, or acetylene.

If limelight or electric arc be your illuminant, you have at command the means of greatly increasing your light; or if you do not desire such increase, you can retain your present illumination at one half your present expenditure of gases or electricity.

With ordinary oil lamp or incandescent gas burner, a bright 9 feet picture (not disc) is obtainable.

"I expected a better illumination with it than with an ordinary opaque screen, and I was agreeably surprised to find the increase nearly double what I had expected."—Editor, *Optical Magic Lantern Journal.*

"We were astonished at seeing the enormous increase in brilliancy which is attained by this screen."—*Photographic News.*

Sole Makers— From all Dealers.

R. FIELD & CO., Lantern Manufacturers,
142, Suffolk Street, BIRMINGHAM.

— ESTABLISHED 1817. —

BANKS & GREAVES,

366, Clapham Road, LONDON, S.W.

MANUFACTURERS OF

OPTICAL LANTERNS,

Photographic and Scientific Apparatus

Lantern Slides by Wet Collodion Process. Customers Slides coloured by first-class Artists.

from its normal perpendicular position by the roller 19 each time when the latter moves into its extreme rearward position, will be such as to draw off the exact predetermined length of film from the roller 2 necessary to bring a fresh photograph into position behind the aperture 14.

During exposure the film is kept stationary behind the aperture 14 by the steadying plate, and as the roller 19 recedes from the film the slack in the lower portion of the latter is drawn in by the driving cylinder 6, and wound up on the roller 7.

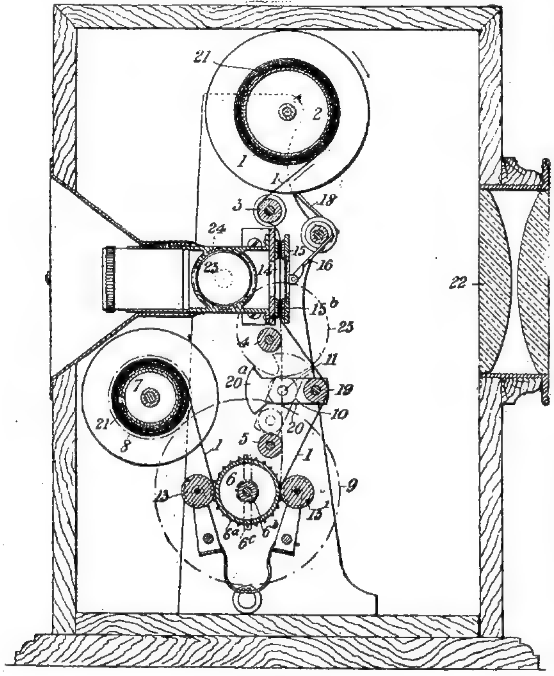


Fig. XV.

In order to prevent undue strain upon the film it is clipped on the rollers 2 and 7 by a divided ring 21 of elastic material, such as spring steel. In the event of undue strain coming upon the film, the ring 21 yields and slips round upon the roller until the excessive strain ceases. The slipping ring also compensates for the varying diameter of the roller 7 during operation.

To enable the film *t* to register at any desired point with the aperture 14, the driving cylinder 6 is mounted loose upon its axle 6*b* and is adapted to be adjusted and fixed thereon by means of a thumb nut 6*c*.

Fig. XVI. shows a modification of the previous figure, and in this modification the film drawing device employed consists of a roller 31 mounted on an axle 32 provided with a cross head 33 adapted to be reciprocated in a horizontal guide way 34 by means of a connecting rod 35 by a crank 36 mounted on a shaft 37.

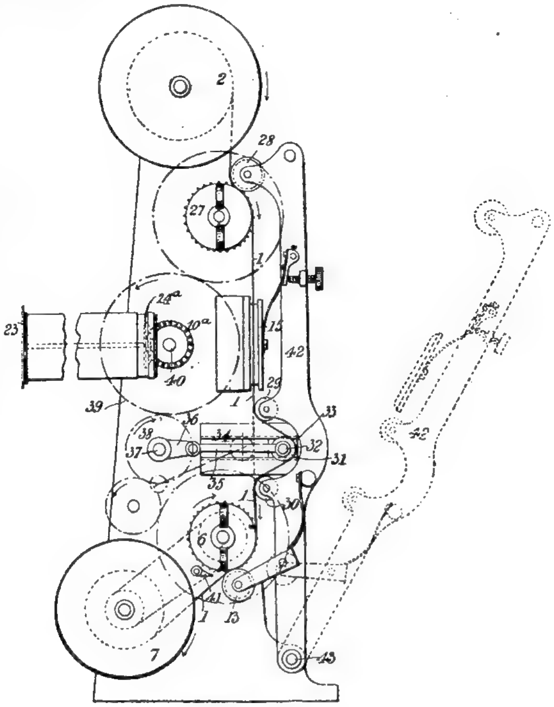


Fig. XVI.

In order to allow of the film being readily inserted, the frame 42 can be swung upon a pivot into the position shown in the dotted lines in F, as shown in Fig. XVI. No. 22928 of 1896.

◆

The Optical Lantern: Its Educational Future.—No. II.

By S. W. BIDWELL.

Temperance, Religious, Missionary, and Co-operative Effort.

I MENTIONED in my previous paper, somewhat cursorily I am afraid, that which some great societies had been doing in the way of disseminating knowledge by means of the lantern. I have written to the secretaries and principals of the more prominent of the organisations and received from them most courteous replies, of which the following is a synopsis:—

NAME OF SOCIETY.	NO. OF LANTERNS.	NO. OF SLIDES.	REMARKS.
Baptist Young People's Association	—	315	No letter received, but lists of slides with descriptive letterpress were forwarded.
British and Foreign Bible Society	—	19 Sets.	
Dr. Barnardo's Homes for Destitute Children	Numerous	600 in circulation	Mr. Finney writes:—"The value of the lantern for lecturing purposes is obvious, as it enables the lecturer to appeal to the hearer in a second avenue, viz., what Bunyan calls the 'Eye-gate.' The cleverest 'word-painter' cannot describe his subject as clearly as the picture can reproduce it, and he is further limited by the extent of the imagination of his audience. The lantern is in danger of reducing the lecture to a kind of show, the slides being the chief exhibition, and the lecturer simply a showman, who explains the slides, whereas the lecture should be a lecture only, illustrated by lantern views. For scientific, and indeed all educational purposes the lantern is invaluable for the obvious reasons given above."
Church Aid, &c., Society	None used	None used.	
Church Army	On loan	30,000	Lanterns and slides are loaned at a small charge all over the United Kingdom; slides are also supplied for Church Mission work in India, Africa, China, Canada, New Zealand, and West Indies. The Church Army lantern department is in touch with the Church all over the world.
Church Missionary Society	–	Over 4,000	The number of lanterns is not stated in the reply.
Church of England Temperance Society	—	1,061	No letter accompanied the returns; the communicator simply enclosing a printed list of slides with descriptive matter. Although this society does possess lanterns, the number does not appear, but the terms of borrowing both lanterns and slides are given.
Church Schools Company	—	—	It is not the practice to have lanterns, &c., in this company's schools.
Church of England Sunday School Institute	None	None	All our work in that particular direction is done by a South London firm.
Co-operative Union, Limited (Manchester)	5	—	Encloses syllabus of lantern slides. There are five lanterns, stationed one each at London, Manchester, Plymouth, Newcastle-on-Tyne and Glasgow.
Gresham College	None	None.	
Kindness to Animals Society, &c.	—	—	The Rev. J. Lawrence writes me:—"The magic lantern is most valuable, especially in country places. Persons engaged in the fields have little practice in the exercise of their thinking faculties apart from what they see. To carry home the truth to the bucolic mind, it is of the first importance to associate it with something visible. Still our societies have no lamps [lanterns] themselves except one, but the friends have many which they use to make known our aims."
Kinnaird, The Right Hon. Lord	—	—	"I cannot help you with any information, as I am not in direct touch with any special lantern exhibitors, and do not know the details of their lectures."
London City Mission	4	500	These figures only apply as regards our London office. Amongst our 402 missionaries will be found lanterns and slides, but of these we cannot give you any statistics.
London County Council	None	None.	

NAME OF SOCIETY.	NO. OF LANTERNS	NO. OF SLIDES.	REMARKS.
National Liberal Federation	—	—	A large number of our agents throughout the country illustrate their political lectures with the magic lantern. Several of the Liberal Associations of the country possess lanterns and slides. We have no record of the number in use, but believe the custom of illustrating lectures is somewhat on the increase, and as an adjunct to a political lecture their educational value is admitted. The judicious use of the magic lantern also tends to popularise political lectures.
Primrose League	—	384	Lanterns are provided by the several Habitations, the slides being loaned on certain terms from the Council.
School Board for London	Several	Several	They are supplied to many schools, and are mostly used for illustrating the geography and history lessons.
Shaftesbury Society (Ragged School Union)	50	About 1,600	With respect to our local missions, it is becoming more and more the practice to have lanterns of their own, so there must be a very large number scattered about in connection with the movement.
Wesleyan Missionary Society	—	1,095	The lanterns must be provided locally, but the slides may be hired on payment of a small fee.
Y.M.C.A. (Central Branch)	2 in town	Hired	In our own association here we have two lanterns, but slides we hire.

I acknowledge the uniform courtesy by which my various questions have been answered, and thus publicly thank the several gentlemen who have so kindly given thought and time to my letters, and I am desirous of bringing before our readers the concensus of the opinions from which my previous statements receive much support. Many of my correspondents express a desire to see this report published at an early date in the MAGIC LANTERN JOURNAL.

I also wrote to several other societies, but I have not received any answers. Those to whom I wrote and have not replied are:—General Booth (Salvation Army), British Unitarian Committee, British Unitarian Sunday School Association, and the Home Counties Federation.

First of all I will take the Bible Society as being a most important organisation—Mr. Harry Scott says: "If you desire to speak of the value of lantern lectures, you may think of us as thoroughly convinced of this."

The superintendent of the lantern department of the Church Missionary Society says: "The lantern is now, as it should be, considered as part of the necessary furniture of a parish or institution; consequently we find there is little demand for us to supply lanterns for use at meetings on behalf of this society. We merely supply the slides. We are more and more convinced of the usefulness of the lantern as a means of bringing to the public the condition and the need of the Heathen and Mahommedan world."

The clerk to the London School Board tells me that "the views (slides) are found to be advantageous in impressing the subjects on the minds of the pupils."

Mr. Kirk, the laborious secretary to the Shaftesbury Society (or Ragged School Union), says: "I have long been convinced of the educational value of the lantern, and consider that it is capable of indefinite expansion. The avenues of Eye-gate have been left out of count much too long, to my mind, particularly amongst the lowest and those deficient of education. Photography has of course done an immense deal for the lantern, but I still think we urgently need a higher class of humorous slides; the old stupidities of the past 40 years are still shown, while all round there have been enormous advances in art production. A perfect light is still a desideratum."

Writing from the Mission House in Bishopsgate Street Within, the secretary states that "we find that our slides, etc., help to keep up and strengthen the enthusiasm of our young subscribers."

Mr. Finney had not, of course, seen the first portion of my paper, or he would have noticed that I there stated that the operator must be thoroughly efficient. If the lecturer allows himself to degenerate to a mere showman, he is not fit for the character he attempts to play. The lantern cannot become a show if the lecturer is at all up to his work.

The general secretary of the Wesleyan Missionary Society writes: "I consider the lantern one of the most valuable educational agencies at our disposal."

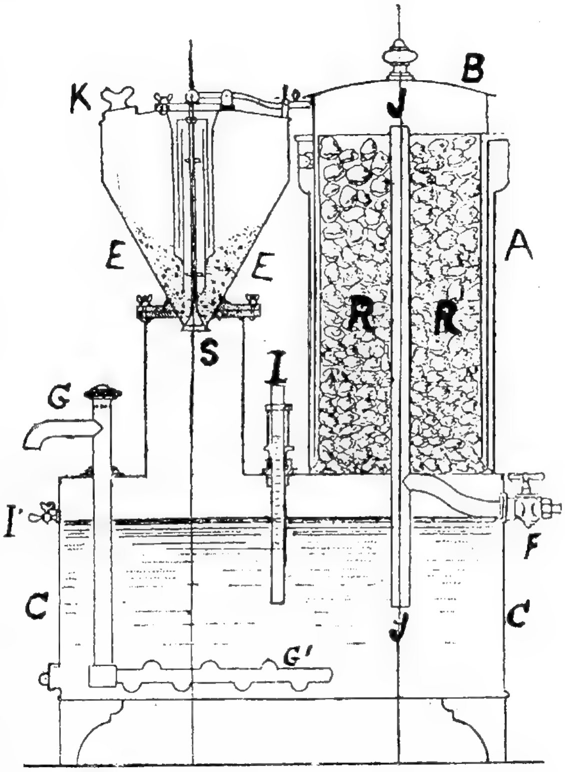
The secretary of Dr. Barnardo's Homes says: "I am afraid I cannot give you any correct idea of the number of lanterns in use in our Homes. All our deputations employ them for lecturing purposes from time to time, and even use the lantern also for lecturing to the boys in the Homes.

After such opinions as the foregoing, coming as they do from men of high reputation in their several paths of life, who shall say us nay. I may say I feel more strongly than ever the righteousness of the cause I advocate, and intend as far as possible to endeavour to enhance the great blessings which I believe are in store for all people born, and yet to be born, from the Magic Lantern.

I have now come to the end of my tether, but hope, if circumstances should arise, and by the kindness of our Editor, to meet all our friends upon the same ground again.

New Types of Acetylene Generators.

BROKEN carbide is employed in a generator (made by a French firm) under the name of electro-gas. The sectional sketch will explain the manner of working. The water reservoir C C forms a broad pedestal upon which the carbide holder E E, and movable bell B B, which regulate consumption and pressures, are fixed. This bell dips into an annular space A A. The inventor has utilised the interior of the gas holder by placing purifying material inside, as shown at R, through which the gas passes before reaching the orifice of the vertical tube J; the other end of this pipe dips into the water and a branch pipe for exit of the gas is seen at F. The carbide distributor takes the form of a conical hopper. The opening at the point through which the lumps drop is shut by a valve S, which is sufficiently heavy to fall by its own weight. This valve is supported by a vertical rod connected with a horizontal beam, which can oscillate around a fixed axis. When the bell descends it comes into contact with the end of the beam and lowers it, the effect of which is that the valve is slightly raised and free passage given to the carbide, which falls into the water. The generation of gas then causes the bell to rise and the beam being released lets the valve shut, thus limiting the supply to what is strictly necessary.



The hopper E E is provided with two openings at top, one K, by which the carbide is inserted, is closed with a screw plug, the other situated in the axis of the cone for the valve rod, at which a hydraulic joint assures tightness. In the apparatus the pressure of gas is constant and is represented by the weight of the bell; this pressure corresponds to a column of water of about 12 centimetres. There is a pipe I which indicates the water level in the reservoir and a pipe G for removal of lime water; G is a paddle to dilute the lime by stirring when the deposit gets too thick. Finally there is a plug for clearing.

The Ordway acetylene generator is made by the National Acetylene Gas Company, of Corning, New York, U.S.A. With this apparatus the calcium carbide is placed in a magazine immediately above the generating chamber; this magazine is circular in shape and contains an inner well-like container, in each of which a supply of calcium is placed. These receptacles are, as shown in the cut, provided with

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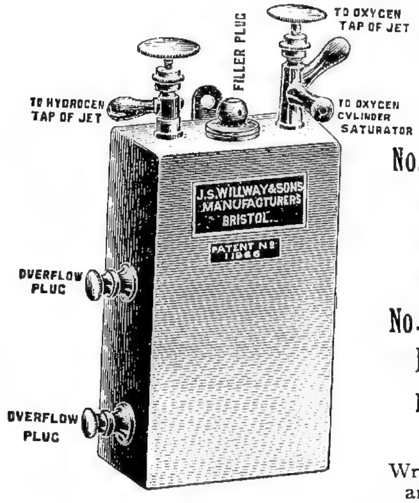

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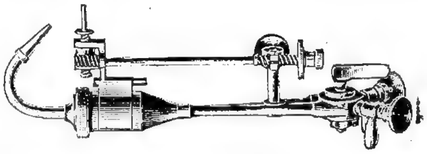

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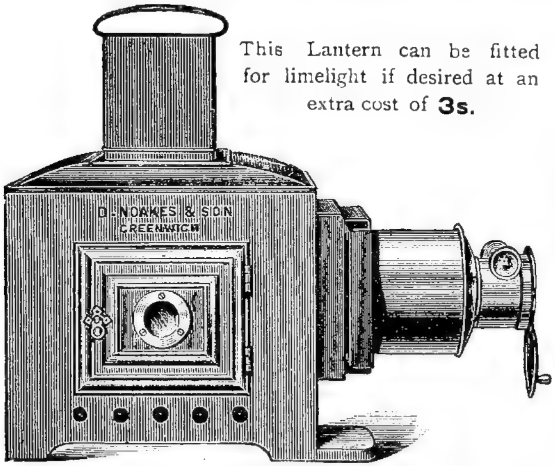

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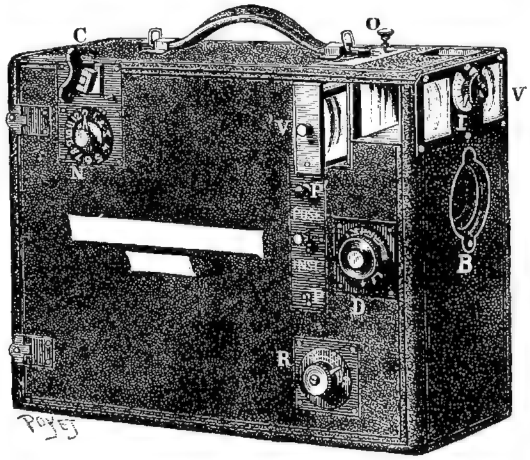

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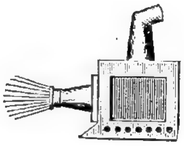

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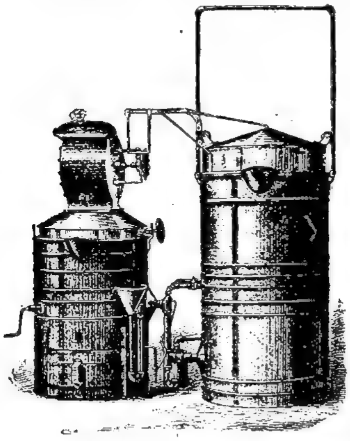
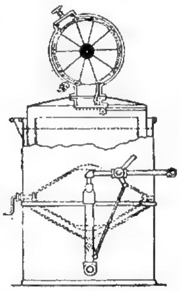
a falling lid, and the bell gasometer will hold more than the quantity of gas given off by the contents of one of the radiating chambers. The chamber immediately opposite the opening discharges its contents into the water below, thus causing a supply of gas to be generated, which gas passes by means of a connecting pipe into the gasometer. When this supply of gas has been nearly used, or drawn off, the lever connected at the top of the bell engages in its descent with a ratchet wheel, fastened on the axis, which causes the carbide receptacle to revolve till the next trapdoor is opposite the opening of the generating portion, when it immediately discharges its contents into the water and the bell again rises, and in this manner it will be seen that the apparatus is automatic. The simple act of rotating the calcium chamber closes the trapdoor of the receptacle from which the previous charge was discharged. The crank handle is used for stirring up the lime previous to drawing off the water. Taps are provided for closing the connection between the carbide container, generator, and gasometer, so that a new supply of carbide can be inserted during the working of the apparatus.





——:o:——

Magic Lantern Almanac and Annual, 1898-9.

The Editor will be pleased to hear as soon as possible from those readers who will favour him with particulars of new appliances, hints on working, etc., for insertion in the next Annual, which it is intended to publish early in October. Doubtless many readers of this journal will have some suggestion or other to offer, either by way of an original idea or improvement of some appliances already in existence, or at least some experience in connection with lanterndom.

PATENT INTELLIGENCE.

The following List, relating to current Patent Applications, is compiled expressly for the "Optical Magic Lantern Journal" by W. P. Thompson & Co., Patent Agents, of 322, High Holborn, London, W.C., to whom all enquiries for further information should be addressed.

No.	Recent Patent Applications.
11171.	16th May, 1898. A. B. Williams. Improvements relating to acetylene lamps.
11219.	17th May, 1898. A. J. Bault (C. M. Campbell, United States). Improvements in kinetoscopes. Complete.
11284.	17th May, 1898. J. O. Spong. Improved apparatus for producing and exhibiting kaleidoscopic effects or designs adapted to advertising and other uses.
11565.	23rd May, 1898. H. Ely. Improvements in acetylene gas generators.
11834.	25th May, 1898. F. W. Taylor and G. W. Shaw. Improvements in cinematographs, or apparatus for obtaining and viewing animated photographs.
11910.	25th May, 1898. J. Bartlett. An improved acetylene gas generator. Complete.
12012.	26th May, 1898. S. Falk. An improved lamp or lantern for acetylene gas.
12415.	2nd June, 1898. P. Wolff. Improvements in kinetoscopes.
12499.	3rd June, 1898. C. Raleigh. Improvements in apparatus for recording and reproducing photographic pictures and the like.
12662.	6th June, 1898. J. Dickinson. Improvements relating to shutters for cinematographic or other apparatus for projecting animated pictures.
12939.	9th June, 1898. B. Acres. Improvements in cinematographic apparatus.
13014.	10th June, 1898. F. E. Hoffman. Improvements in apparatus for taking and projecting photographs of moving objects.

Specifications Published.

Copies of the following specifications may be obtained by remitting 1/- for each specification to W. P. Thompson & Co., Patent Agents, 322, High Holborn, London, W.C.

17438 of 1897. Sweetser. Optical lanterns.
12263 of 1897. Preston. Acetylene gas manufacture.
11923 of 1897. Hepworth. Apparatus for exhibiting photographic pictures.
7070 of 1898. Edwards (Steiner). Acetylene gas apparatus.
9374 of 1898. Lorrain (the Northern Advertising Company). Optical projection apparatus.
4907 of 1898. Barbier and Benard. Lenses for lighthouses, projecting apparatus, and the like.
5519 of 1898. Maddison and Frew. Limelight jet.
6724 of 1898. Hughes. Portable apparatus for the exhibition of kinetoscopic pictures and effects.

Correspondence.

Re CINEMATOGRAPH.

To Mr. J. Hay Taylor, Editor.

Dear Sir,—In the last issue of the Optical Magic Lantern Journal, I observe that "Magnet" attributes the idea of the moving spring-claw to Mr. Parnaland (patent 13,642 of 1896).

I think that "Magnet" is wrong in attributing the invention to this gentleman. The moving spring-claw was invented by Mr. R. D. Gray, who has taken his first patent in America (No. 540,545 of 1895). The two spring-claws (one moving, one stopping) constitutes a patent of my own. The one spring-claw is not a very good system, because equi-distance is not obtained between each picture, so that with this it is not possible to have good projections.

Two spring-claws, my patent, are, I maintain, the best system yet invented.

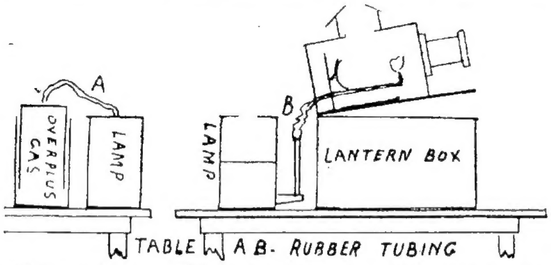
Yours truly,
A. RATEAU.

25, Margaret Street,
Cavendish Square, W.
June 8th, 1898.

THE ALADDIN ACETYLENE LAMP.

To Mr. J. Hay Taylor, Editor.

Dear Sir —I have read with much interest the article in the current number of the Optical Magic Lantern Journal on the new Aladdin acetylene lamp. Judging from the description therein given, I should say it is just the lamp that will suit those lanternists, who, like myself, are unable to obtain compressed gas near for limelight exhibitions. It has occurred to me, however, that the Aladdin lamp might be rendered more safe for use by being placed outside the lantern on the table, or stand, on which the lantern is fixed for exhibition. A tray fitted with the reflector and burner could be placed in the lantern and connected with the gas outlet from the generating lamp by a piece of rubber tubing. This arrangement would enable the operator to tilt his lantern to any desired angle without altering the position of the generator. Re-charging would be also less dangerous, the light being a greater distance off. A gasometer for receiving overplus gas could be placed side by side with the generating lamp and connected in the way you have already suggested. I herewith enclose a rough sketch of suggested arrangements.



Yours, etc.,
E. A. COLBORNE.

Ringwood,
June 8th, 1898.

[We would refer you to a note in the first part of this issue.—Ed.]

Notes and Queries.

W. Carter.—In the following order:—Zeiss, Anistigmat, Convertible, Dallmeyer Stigmatic, 5 3.

J. W. Bishop.—In the making of such a lens as you require, so many elements have to be considered that we venture to think, in spite of the fact that you are an expert metal turner, that it would be a long time before you would be able to make a lens to suit. You would find it infinitely cheaper to buy one. You will get much information from "The Optics of Photography," by J. Traill Taylor. It is published by Whittaker & Co., of White Hart Street, London, E.C., at 3s. 6d.

A Reader.—We do not know the Monopol hand camera but you will obtain particulars as to what apparatus is required from "Photography in a Nutshell," published by Iliffe and Son, of Coventry, price 1s.

G. W. Nash.—It was a lucigen not a saturator which exploded at Cork.—*See* item under Notes column.

B. Turney.—With reference to our reply in last issue, Mr. Matthews, of 97, Queen Victoria Street, writes:—That a kerosene burner (the Era) with mantle has been placed on the market, and that he has had one fitted specially to his lantern. He explains that when carefully trimmed an excellent light is obtained, but if carbon gets deposited on mantle the light is reduced.

A. S. R.—Place a narrow tank with glycerine either between the illuminant and condenser, or in the stage front.—*See* this Journal for May last.

J. W. Meaden.—Please to hear that our note has been the means of putting matters right.

Cornwall.—(1) A lot of information about acetylene will be found in our back numbers of the past two years. (2) There is no danger in having an acetylene generator under the lantern stand if the overflow pipe is taken to the outside air. (3) The light is better than the best oil lamp for lanterns. All burners of 00000 should give the same amount of light, this does not depend on the particular make of generator. (4) The generators to which you allude are for the most part large apparatus for illuminating country houses.

Time.—(1) The absorption of gas is very slight, and is not appreciable when working the apparatus. (2) A very slight smell might be noticed after a considerable time, but ere this it would have been necessary to have changed the water owing to the quantity of lime given off by the carbide. (3) Use small lumps of pumice stone. (4) It is not of much consequence. (5) About 3 inches. (6) Zinc will do. (7) Trap doors, etc., would have to be made to order; try Mr. F. Brown, 13, Gate Street, London, W.C. (8) Two burners. (9) Messrs. Thorn and Hoddle, of New Tothill Street, Westminster, London, or Professor Hyder, 58, Pevensey Road, Eastbourne. (10) There never was so much rubbish on the market in the way of slides as at the present time. (11) We think they are either by York and Son, of London, or Wilson and Company, Limited, of Aberdeen. (12) All dealers in England get their supply from the same source, consequently the quality is about equal.

Collvi.—(a) A parallel beam may be obtained in severa ways, such as placing the illuminant at the focus of a parabolic reflector, by adjusting the distance of a light from a convex lens (*see* this Journal for August, 1895), or by employing a concave lens in conjunction with lantern condenser (*see* this Journal for October, 1891). (b) We hardly understand your question about fine slit.

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Patents 10,554 and 24,761/93.

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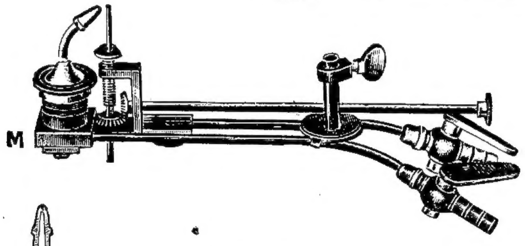

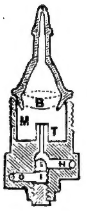

This is the only Mixed Gas Jet which will work at full power with coal gas taken direct from the town supply, and oxygen from a cylinder. In order to effect this the oxygen, on its way to the mixing chamber, is made to pass through the small Injector I in the sketch at a pressure of about 12 lbs. per square inch. In passing through the Injector it sucks a supply of coal gas from the pipe H, which is connected with the house pipe, and forces it forward through the short pipe T into the mixing chamber M. Here the mixed gases meet the baffle plate B, which has the two-fold effect of silencing the passage of the gases, and ensuring their complete admixture. The mixed gases then pass through holes in the edge of the plate, and so to the burner. The requisite pressure of oxygen is obtained in the ordinary way by a fine tap on the cylinder, or an automatic regulator fitted with a high-pressure spring to deliver at about 15 lbs. pressure.

Three seasons' experience have fully established the superiority of this Jet over all others. It will yield **THE FULL 1,800 TO 2,000 CANDLE-POWER** (so-called) of the ordinary mixed jet when taking its supply of coal gas direct from the town's pipe, or even from a bag *without any pressure at all.* If a town's supply is not available, it will work just as well with coal gas from a cylinder, We cannot see why ordinary mixed jets should be purchased which cannot offer these alternatives. As for blow-through jets, we do not know why they should be used at all, when with the same economy and convenience of working, the Injector Jet will give two or three times the light.

The working of the Jet is simpler than that of an ordinary jet. When the H tap is once adjusted, it does not need to be touched again when using town's gas. The turning off or on of the oxygen supply regulates automatically the supply of coal gas. This is a great convenience in actual use.

Most existing jets can be fitted with an Injector to enable them to take their coal gas supply from the house pipe.

The Jet will in certain cases be sent on approval on deposit of purchase price. Further particulars free on application to

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